

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Docket No.: **2041219-0005CIP**

James L. LEWIS, Jr., *et al.*

Serial No.: 10/616,750

Group Art Unit: 1725

Filed: July 10, 2003

Examiner: Ing Hour LIN

Confirmation No.: 2336

For: **METHOD AND APPARATUS FOR ASSISTING REMOVAL OF SAND
MOLDING FROM CASTINGS**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR REFUND

Sir:

Applicants respectfully request a refund of fees in the amount of \$700.00 in connection with the payment for a Notice of Appeal and two (2) months of the Three (3) Month Extension of Time filed on May 14, 2007 with the U.S. Patent and Trademark Office. Applicants did agree to an Examiner's Amendment, so payment of a one month extension is appropriate.

STATEMENT OF FACTS

On May 14, 2007, Applicants filed a Notice of Appeal with a Petition for Three (3) Month Extension of Time along with payment by credit card in the amount of \$250.00 and \$510.00 on two PTO-2038 forms.

The Notice of Appeal with a Petition for Three (3) Month Extension of Time was filed due to the fact that no response was received from the USPTO.

On August 10, 2007, the USPTO mailed the Notice of Allowability and on September 27, 2007, the USPTO mailed the Notice of Allowance, Fee(s) Transmittal, Determination of Patent Term Adjustment under 35 U.S.C. 154(b), Notice of Allowability, Examiner-Initiated Interview Summary and Notice of References Cited.

Enclosed herewith are copies of:

1. Copy of Notice of Allowance, Fee(s) Transmittal, Determination of Patent Term Adjustment under 35 U.S.C. 154(b), Notice of Allowability, Examiner-Initiated Interview Summary and Notice of References Cited, mailed September 27, 2007;
2. Copy of Notice of Allowability, mailed August 10, 2007;
3. Copy of Notice of Appeal with a Petition for Three (3) Month Extension of Time and two PTO-2038 forms, as filed on May 14, 2007;
4. Copy of Reply and Amendment Under 37 C.F.R. 1.116, as filed on February 13, 2007; and
5. Copy of Final Office Action, mailed November 13, 2006

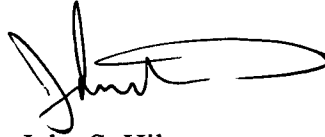
REMARKS

Applicants believe refund is in order for the Notice of Appeal and two (2) months of the Three (3) Month Extension of Time as filed on May 14, 2007 with the U.S. Patent and Trademark Office.

CONCLUSION

Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's
Deposit Account No. 23-1951 (McGuireWoods).

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'John S. Hilten', with a large, sweeping horizontal stroke at the end.

John S. Hilten
Reg. No. 52,518

Date: March 24, 2008

McGuireWoods LLP
1750 Tysons Boulevard
Suite 1800
McLean, VA 22102-4215
Tel: 703-712-5069
Fax: 703-712-5196



UNITED STATES PATENT AND TRADEMARK OFFICE

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

7590

09/27/2007

McGuireWoods LLP
Suite 1800
1750 Tysons Boulevard
McLean, VA 22102-4215

EXAMINER

LIN, ING HOUR

ART UNIT

PAPER NUMBER

1725

DATE MAILED: 09/27/2007

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,750	07/10/2003	James L. Lewis JR.	2041219-0005	2336

TITLE OF INVENTION: METHOD AND APPARATUS FOR ASSISTING REMOVAL OF SAND MOLDINGS FROM CASTINGS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$700	\$300	\$0	\$1000	12/27/2007

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

7590
 McGuireWoods LLP
 Suite 1800
 1750 Tysons Boulevard
 McLean, VA 22102-4215

09/27/2007

COPY

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/616,750	07/10/2003	James L. Lewis JR.	2041219-0005	2336
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TITLE OF INVENTION: METHOD AND APPARATUS FOR ASSISTING REMOVAL OF SAND MOLDINGS FROM CASTINGS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional	YES	\$700	\$300	\$0	\$1000	12/27/2007
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EXAMINER	ART UNIT	CLASS-SUBCLASS
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LIN, ING HOUR	1725	164-131000
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1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, _____ 1
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. _____ 2
- _____ 3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change In Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,750	07/10/2003	James L. Lewis JR.	2041219-0005	2336

7590
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Suite 1800
1750 Tysons Boulevard
McLean, VA 22102-4215

09/27/2007

COPY

EXAMINER

LIN, ING HOUR

ART UNIT PAPER NUMBER

1725

DATE MAILED: 09/27/2007

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 318 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 318 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability

Application No.

10/616,750

Examiner

Ing-Hour Lin

Applicant(s)

LEWIS ET AL.

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

COPY

1. ☒ This communication is responsive to 2/13/07.
2. ☒ The allowed claim(s) is/are 1-34.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

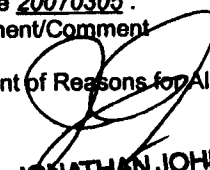
4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 20070305.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.


JONATHAN JOHNSON
PRIMARY EXAMINER

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John Hilten on March 5, 2007.

The application has been amended as follows:

IN CLAIMS

Claims 35-48 were canceled.

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ing-Hour Lin whose telephone number is (571) 272-1180. The examiner can normally be reached on M-F (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

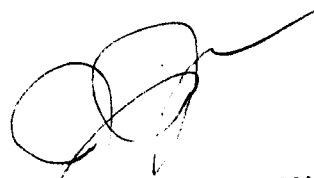
Art Unit: 1725

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

I-H. Lin

I.-H. Lin

3/5/07


JONATHAN JOHNSON
PRIMARY EXAMINER

Examiner-Initiated Interview Summary	Application No.	Applicant(s)	
	10/616,750	LEWIS ET AL.	
	Examiner	Art Unit	
	Ing-Hour Lin	1725	

All Participants:

(1) Ing-Hour Lin.

(2) John Hilten.

COP

Status of Application: Examiner's Amendment

(3) _____

(4) _____

Date of Interview: 5 March 2007

Time: 10:30 am

Type of Interview:

- ☒ Telephonic
☐ Video Conference
☐ Personal (Copy given to: ☐ Applicant ☐ Applicant's representative)

Exhibit Shown or Demonstrated: ☐ Yes ☐ No

If Yes, provide a brief description:

Part I.

Rejection(s) discussed:

Claims discussed:

35-48

Prior art documents discussed:

Part II.

SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:

Attorney agreed that claims 35-48 were canceled.

Part III.

- ☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.
☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.

P. H. Lin
(Examiner/SPE Signature)

(Applicant/Applicant's Representative Signature – if appropriate)

COPY

Notice of References Cited

Application/Control No.

10/616,750

Applicant(s)/Patent Under
Reexamination
LEWIS ET AL.

Examiner

Ing-Hour Lin

Art Unit

1725

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,622,775	09-2003	Crafton et al.	164/131
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

COPY

FILE COPY

Electronic Acknowledgement Receipt

EFS ID:	1512691
Application Number:	10616750
International Application Number:	
Confirmation Number:	2336
Title of Invention:	Method and apparatus for assisting removal of sand moldings from castings
First Named Inventor/Applicant Name:	James L. Lewis
Correspondence Address:	McGuireWoods LLP - Suite 1800 1750 Tysons Boulevard McLean VA 22102-4215 US 703-712-5254 -
Filer:	John Shadrick Hilten
Filer Authorized By:	
Attorney Docket Number:	2041219-0005
Receipt Date:	13-FEB-2007
Filing Date:	10-JUL-2003
Time Stamp:	15:20:01
Application Type:	Utility

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)
1	Amendment After Final	Resp2041219-0005.pdf	526445	no	17

Warnings:

Information:

Total Files Size (in bytes):	526445
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

COPY

BOX AF

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Docket No.: 2041219-0005US

James L. LEWIS, JR., *et al.*

Serial No.: 10/616,750

Group Art Unit: 1725

Confirmation No.: 2336

Filed: July 10, 2003

Examiner: Ing-Hour LIN

**For: METHOD AND APPARATUS FOR ASSISTING REMOVAL OF SAND MOLDINGS
FROM CASTINGS**

United States Patent and Trademark Office
Customer Service Window, **Mail Stop AF**
Randolph Building
401 Dulany Street
Alexandria, VA 22314

REPLY UNDER 37 C.F.R. 1.116

Sir:

In response to the **Final Office Action** mailed November 13, 2006 ("Office Action"), Applicants respectfully request reconsideration of the application in view of the following Amendments and/or Remarks.

- **Listing of the claims** are reflected in the Listing of Claims that begins at page 2
- **Remarks** begin at page 10.
- **Conclusions** are set forth at page 17.

Applicants believe that no extensions of time are required at this time, but if extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. §1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to **Deposit Account No. 23-1951** (McGuireWoods). Please charge any deficiencies in fees and credit any overpayment of fees to the same Deposit Account.

LISTING OF CLAIMS

A Listing of all pending claims and a status of the claims are provided below.

1. (Previously Amended) A method of removing a mold from a casting formed therein, comprising:
subjecting the mold to a process to fracture the mold;
directing an energized stream at the mold to cause the mold to degrade; and
dislodging at least a portion of the degraded mold from the casting.
2. (Previously Amended) The method of claim 1, wherein said step of subjecting comprises scoring the mold by forming score lines in exterior walls of the mold.
3. (Previously Amended) The method of claim 2, wherein the score lines are placed in predetermined locations to aid breaking down and dislodging portions of the mold from the casting.
4. (Previously Amended) The method of claim 1, wherein said step of subjecting comprises thermally expanding the casting to cause the casting to bear against the mold.
5. (Original) The method of claim 4, wherein the casting is expanded by heating the casting.

6. (Original) The method of claim 5, wherein the casting is heated by an energy source selected from the group consisting of radiant energy, inductive energy and combinations thereof.

7. (Original) The method of claim 6, wherein the energy source is selected from the group consisting of electromagnetic energy, lasers, radio waves, microwaves, and combinations thereof.

8. (Previously Amended) The method of claim 1, wherein the mold is formed from sand and a degradable binder and wherein said step of subjecting comprises combustion when the mold is heated under elevated pressures in an enriched oxygen atmosphere to facilitate breakdown of the mold.

9. (Original) The method of claim 1, wherein at least a portion of the degraded mold is dislodged from the casting prior to heat treating the casting.

10. (Original) The method of claim 1, wherein the energized stream comprises a pressurized fluid.

11. (Previously Amended) The method of claim 10, wherein the pressurized fluid comprises heated air, thermal oil or water.

12. (Previously Amended) A method of dislodging a mold from a casting formed therein, comprising:

directing an energized stream at the mold, wherein the energized stream comprises an explosive charge detonated at a selected location within exterior walls of the mold;
subjecting the mold to a process to fracture the mold; and
dislodging at least a portion of the mold from the casting.

13. (Original) The method of claim 12, wherein the mold is comprised of sand and a binder.

14. (Previously Amended) The method of claim 12, wherein said step of subjecting comprises scoring the mold by forming score lines in exterior walls of the mold.

15. (Original) The method of claim 14, wherein the score lines are operatively placed in combination with the explosive charge in predetermined locations for breaking down and dislodging portions of the mold from the casting.

16. (Original) The method of claim 12, wherein at least a portion of the mold is dislodged from the casting prior to heat treating the casting.

17. (Previously Amended) The method of claim 12, wherein said step of subjecting comprises heating the casting to cause expansion of the casting.

18. (Original) The method of claim 17, wherein heating the casting comprises applying energy to the casting from an energy source selected from the group consisting of radiant energy, inductive energy and combinations thereof.

19. (Original) The method of claim 18, wherein the energy source is selected from the group consisting of electromagnetic energy, lasers, radio waves, microwaves, and combinations thereof.

20. (Previously Amended) The method of claim 12, and wherein the mold is formed from sand and a degradable binder that is combusted in said step of subjecting as the mold is heated under elevated pressures in an enriched oxygen atmosphere to facilitate breakdown and dislodging of the mold from the casting.

21. (Previously Amended) The method of claim 12, wherein said process comprises directing a pressurized fluid at exterior walls of the mold.

22. (Previously Amended) The method of claim 21, wherein the pressurized fluid comprises heated air, thermal oil or water.

23. (Previously Amended) A method of dislodging a mold from a casting formed therein, comprising:

stimulating the mold with an energy pulsation;
subjecting the mold to a process to assist fracturing the mold; and
dislodging the mold from the casting.

24. (Original) The method of claim 23, wherein the energy pulsation is applied as a shock wave.

25. (Previously Amended) The method of claim 24, wherein the shock wave is produced from at least one of the following: mechanical means, cannons, pressurized gasses and electromechanical means, and a combination thereof.

26. (Previously Amended) The method of claim 23, wherein said step of subjecting comprises scoring the mold by forming score lines in exterior walls of the mold.

27. (Original) The method of claim 26, wherein the score lines are operatively placed in predetermined locations for breaking down and dislodging portions of the mold from the casting.

28. (Previously Amended) The method of claim 23, wherein said step of subjecting comprises heat treating and pieces of the mold are dislodged from the casting prior to heat treating the casting.

29. (Previously Amended) The method of claim 23, wherein said step of subjecting comprises heating the casting so as to cause the casting to expand.

30. (Original) The method of claim 29, wherein heating the casting comprises applying energy to the coating from an energy source selected from the group consisting of radiant energy, inductive energy and combinations thereof.

31. (Original) The method of claim 30, wherein the energy source is selected from the group consisting of electromagnetic energy, lasers, radio waves, microwaves, and combinations thereof.

32. (Previously Amended) The method of claim 23, and wherein the mold is formed from sand and a degradable binder and said step of subjecting comprises combusting the binder as the mold is heated under elevated pressures in an enriched oxygen atmosphere to facilitate breakdown of the mold.

33. (Original) The method of claim 23, wherein stimulating the casting with a high energy pulsation includes directing a pressurized fluid at exterior walls of the mold with a force sufficient to cause the mold to fracture.

34. (Original) The method of claim 33, wherein the pressurized fluid comprises heated air, thermal oils or water.

35. (Previously Amended) A method of dislodging a mold from a casting formed therein, comprising:

moving the mold along a processing path with the casting therein;

directing a fluid media at exterior walls of the mold;

subjecting the mold to processing; and

dislodging the mold from the casting with the fluid.

36. (Original) The method of claim 35, wherein the fluid comprises heated air, thermal oils or water.

37. (Previously Amended) The method of claim 35, wherein said step of subjecting comprises heating the casting to cause expansion of the casting within the mold.

38. (Original) The method of claim 37, wherein heating the casting comprises directing energy through the mold at the casting with an energy source selected from the group consisting of radiant energy, inductive energy and combinations thereof.

39. (Original) The method of claim 38, wherein the energy source is selected from the group consisting of electromagnetic energy, lasers, radio waves, microwaves, and combinations thereof.

40. (Previously Amended) The method of claim 35, and wherein the mold is formed from sand and a degradable binder, and said step of subjecting comprises combusting the binder of the mold as the mold is heated under elevated pressures in an enriched oxygen atmosphere to facilitate breakdown of the mold.

41. (Original) The method of claim 35, wherein the pieces of the mold are dislodged from the casting prior to heat treating the casting.

42. (Previously Amended) The method of claim 35, wherein dislodging the mold from the casting comprises removing at least a portion of the mold from the casting.

43. (Original) The method of claim 35, wherein the fluid media is directed at the exterior walls of the mold when the casting is partially solidified.

44. (Previously Amended) A method of removing a mold from a casting formed therein, comprising:
directing an energized stream at the mold when the casting is partially solidified; and
dislodging at least a portion of the mold from the casting.

45. (Original) The method of claim 44, wherein the energized stream includes at least one stream selected from pressurized fluids, explosives, electromagnetic energy, particles and combinations thereof.

46. (Original) The method of claim 44, further comprising scoring the mold to weaken the mold.

47. (Original) The method of claim 44, further comprising heating the casting to cause thermal expansion of the casting.

48. (Original) The method of claim 44, wherein dislodging at least a portion of the mold includes removing at least a portion of a core from the casting.

REMARKS

The Office Action of November 13, 2006 has been received and its contents carefully noted. By this response, none of the claims have been amended. Accordingly, claims 1-48 are currently pending in the application, of which claims 1, 12, 23, 35, and 44 are independent claims.

Reconsideration and withdrawal of all pending rejections in view of the following remarks is respectfully requested.

35 U.S.C. § 103 Rejection

Claims 1-3, 10-11, 35-16 and 42 are rejected under 35 USC 103(a) as being unpatentable over JP 55077972 in view of JP 09182952. This rejection is respectfully traversed.

Japanese Patent No. JP 55077972 (hereinafter JP 972) teaches the use of providing scores to become crushing-initiation points. The scores are generated with a support plate 14 and piercing bars 13. Thereafter, a separate crushing is used to obtain the mold product. JP 972 does not teach using this process with any other process.

Japanese Patent No. JP 09182952 (hereinafter JP 952) is directed to a method and device for removing a mold and core from a casting. More specifically, the English language abstract of JP 952 describes the problem to be solved is to crush molding sand and remove it with ejection water from a casting. As shown by the figures and specifically Figure 8, the process set forth by JP 952 is directed to cleaning out molding sand from inside a hollow part.

Claim 1, on the other hand, uses multiple processes to fracture, degrade and dislodge the mold from a casting. This is contrary to the teachings of JP 952 which is merely directed to

a single process of ejecting the high-pressure water toward the casting and JP 972 that teaches to pierce and crush the mold.

Similarly, claim 35 recites the step of directing a fluid media at exterior walls of the mold. The teachings of JP 952 require injecting high-pressure water in a hollow part of the cast product as shown in Figure 8. Accordingly, claim 35 is not considered to be anticipated by the teachings of JP 952. Moreover, claim 35 further requires a step of subjecting the mold to a process. In this regard, claim 35 as taught in the disclosure includes another process for dislodging a mold from a casting. The process being used in conjunction with the step of directing the fluid media at exterior walls.

Noting that JP 972 does not disclose at least directing an energy flow, the Examiner alleges it would have been obvious to modify the teachings of JP 972 with the teachings of JP 952 in order to obtain the claimed invention. See Office Action, paragraph 3. The Examiner further argues that such a combination would result in the claimed invention and would reduce "cycling time." *Id.* There is not basis in the prior art for this statement.

This statement shows that the Examiner has made an improper hindsight reconstruction of the claimed invention through piecemeal prior art teachings. There is nothing in JP 952 or JP 972 that indicate that any further process is needed or that the taught process is somehow deficient. In other words, there is no motivation to combine these two references in the manner suggested by the Examiner. To do so is improper hindsight. The disclosure on the other hand teaches in the Summary that the claimed invention is a method "for enhancing the removal of sand molds."

The prior does not teach combining any of the various claimed processes for enhancing mold removal or any other reason. The cited prior art merely removes mold material from a

casting using the disclosed process. None of the prior art teach a unique combination of processes that provide enhanced mold removal as claimed.

Accordingly, it is respectfully asserted that JP 952 and JP 972 do not render obvious or anticipate the various features of at least independent claims 1 and 35.

Claims 12-15 and 21-22 are rejected under 35 USC 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Vinton et al. This rejection is respectfully traversed.

The Examiner indicates that the combination of JP 972 and JP 952 fail to disclose explosive charges and the Examiner relies on Vinton et al. to teach such a feature.

In particular, Vinton et al. is directed to applying a gaseous composition into the voids of a porous shape inside of a chamber. This is shown in, for example, Figure 2. Next, Vinton et al. teaches that this gaseous material is allowed to explode and weaken the porous shape to allow it to be removed from the mold. Vinton et al. does not disclose an explosive charge. Vinton merely teaches an explosive gas.

Accordingly, the combination of JP 972 in view of JP 952 and further in view of Vinton et al. fails to teach each and every feature of the claims 12-15 and 21-22. A rejection under 35 U.S.C. § 103 based on obviousness cannot be properly maintained without a proper disclosure of each and every element and the motivation to combine the elements. Here the applied references fail to teach at least the use of an explosive charge.

Additionally, JP 972 and JP 952 fail to provide any motivation that would lead one of ordinary skill in the art to combine these references in a manner set forth in the Official Action for the reasons noted above with respect to claims 1-3, 10-11, 35-16 and 42.

Accordingly, the Examiner is respectfully requested to withdraw the rejection under 35 U.S.C. § 103.

Claims 23-27 and 33-34 are rejected under 35 USC 103(a) as being unpatentable over JP 972 in view of JP 952 and further in view of Heine et al. This rejection is respectfully traversed.

The Examiner indicates that the combination of JP 972 and JP 952 fail to disclose energy pulsation and the Examiner relies on Heine et al. to teach such a feature.

In particular, Heine et al. is directed to immersing the mold and casting into a liquid, such as oil, and then applying a shock wave from a pulse generator 26. This is in direct contrast to the claimed invention which desires to process the molding and casting while it is still hot in order to start the heat treatment process as soon as possible. Heine et al. is unable to provide that result in that once a mold has been placed into oil, it will be quickly cooled and will not be able to take advantage of the heated state that will allow for heat treatment to take place very quickly.

This is further substantiated by the fact that the energy pulsation that was recited in claim 23 is not the same as that type of energy pulse created by the pulse generator 26 of Heine et al. In particular, the energy pulse of the claimed invention as noted in claim 25 is a shock wave produced from the energy pulsation that comprises mechanical means, cannons, pressurized gases and electromechanical means and combinations thereof. In this regard, the pulse generator 26 of Heine et al. is an altogether different type of shock wave that is created only in a liquid medium such as oil and only through the use of a shock device such as the device 25 that is a spark gap with a reflector 24 as described in the Heine et al. patent.

In stark contrast, JP 972 and JP 952 are not immersion type processes. There is no motivation to combine JP 972 and JP 952 with the process of Heine. Additionally, JP 972 and JP 952 fail to provide any motivation that would lead one of ordinary skill in the art to combine the prior art in a manner set forth in the Official Action for the reasons noted above. The prior does not teach combining any of the various claimed processes for enhancing mold removal or any other reason. The cited prior art merely removes mold material from a casting using the disclosed process. None of the prior art teach a unique combination of processes that provide enhanced mold removal as claimed.

A rejection under 35 U.S.C. § 103 based on obviousness cannot be properly maintained without a proper disclosure of each and every element and the motivation to combine the elements. Here the applied references fail to provide any motivation that would lead one of ordinary skill in the art to combine the references in a manner set forth in the Official Action.

Accordingly, the Examiner is respectfully requested to withdraw the rejection under 35 U.S.C. § 103.

Claims 44-45 and 48 are rejected under 35 USC 103(a) as being unpatentable over either JP 952, Vinton et al. or Heine et al. in view of Legge et al. This rejection is respectfully traversed.

Legge et al. is directed to cooling molds through the use of high thermally conducting plates 1, end elements 2 and 13 and a cope 3. This is shown in for example in Figure 1 of Legge et al. Further Legge et al. discloses in Figure 9a a temperature versus time cooling curve for conventional gravity sand casting. Legge et al. is directed to changing the cooling time for molds.

Legge et al. is silent to any type of processing to remove the molds in the casting that are partially solidified. Legge et al. is directed more to increasing the speed of solidification of a casting.

There is no motivation to combine JP 952, Vinton et al. or Heine et al. in view of with the process of Legge et al. There is no motivation that would lead one of ordinary skill in the art to combine the prior art in a manner set forth in the Official Action for the reasons noted above because Legge et al. is not directed to mold removal.

Dependent Claims

Claims 4-7 and 37-39 are rejected under 35 USC 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Pennock et al.

Claims 8 and 40 are rejected under 35 USC 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Andrews.

Claims 9 and 41 are rejected under 35 USC 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Schlegel et al.

Claim 16 is rejected under 35 USC 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Vinton et al. and Schlegel et al.

Claims 17-19 are rejected under 35 USC 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Vinton et al. and Pennock et al.

Claim 20 is rejected under 35 USC 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Vinton et al. and Andrews.

Claim 28 is rejected under 35 USC 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Heine et al. and Schlegel et al.

Claims 29-31 are rejected under 35 USC 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Heine et al. and Pennock et al.

Claim 32 is rejected under 35 USC 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Heine et al. and Andrew.

Claim 43 is rejected under 35 USC 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Legge et al.

Claim 47 is rejected under 35 USC 103(a) as being unpatentable over either JP 09182952, Vinton et al. or Heine et al. in view of Legge et al. and further in view of either Smetan et al. or Pennock et al.

Claim 46 is rejected under 35 USC 103(a) as being unpatentable over either JP 09182952, Vinton et al. or Heine et al. in view of Legge et al. and further in view of either Smetan et al. or JP 55077972.

Each of these rejections is traversed. Applicants assert that these dependent claims are allowable on their own merit and at least because they depend on one of independent claims 1, 12, 23, 35 or 44, which Applicants submit has been shown to be allowable.

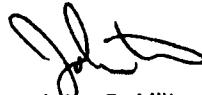
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CONCLUSIONS

Applicants submit that a full and complete response has been made to the pending Office Action and respectfully submit that all of the stated grounds for rejection have been overcome or rendered moot. Accordingly, Applicants respectfully submit that all pending claims are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is thus respectfully requested to pass the above application to issue.

Should the Examiner feel that there are any issues outstanding after consideration of this Reply/Amendment, the Examiner is invited to contact the Applicants' undersigned representative at the number below to expedite prosecution. Prompt and favorable consideration of this Reply/Amendment is respectfully requested. Applicants respectfully request that a timely Notice of Allowance be issued for this application.

Respectfully Submitted,



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Reg. No. 52,518

Dated: February 13, 2007

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,750	07/10/2003	James L. Lewis JR.	2041219-0005	2336

7590

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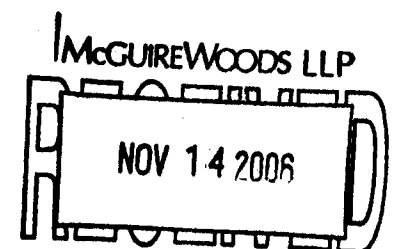
LIN, ING HOUR

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



COPY

Office Action Summary

Application No.

10/616,750

Applicant(s)

LEWIS ET AL.

Examiner

Ing-Hour Lin

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 1-3, 10-11, ~~35~~36 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55077972 in view of JP 09182952.

JP '972 (see abstract) teaches the claimed casting removing method (mold treating processes), comprising: sand molding a mold 4 in a flask 3, moving the mold to a metal pouring station 5 and pouring molten metal in the cavity of the mold 4, scoring the upper mold 4a as crushing-initiation points (lines) and crushing holes in the pre-crushing process 6 and then removing the flask and knocking out the cast product 17 from the broken sand mold in the crushing process 12.

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JP '972 fails to teach the use of directing an energized stream at the mold. However, JP '952 (see abstract and Figs. 1-4) teaches the use of directing an energized stream at the mold 2 such as a jetted high pressure water through the use of nozzle 9 and dislodging at least a portion of the degraded mold (see Figs. 1-4) for the purpose of weakening the mold and promoting the removal of casting 1 from the mold 2. It would have been obvious to one having ordinary skill in the art to provide JP '792 the use of directing an energized stream at the mold as taught by JP '952 in order to reduce cycling time of removing casting from the sand mold.

4. Claims 4-7 and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Pennock et al.

JP 55077972 in view of JP 09182952 fails to teach the use of thermally heating the casting.

However, Pennock et al (col. 2, lines-68+) teach the use of thermally heating the casting (coating 25) with heating means including electrical induction heating means (col. 4, lines 73+) for the purpose of promoting uniform casting and differential expansion between the casting and mold and weakening the mold and promoting the removal of casting from the mold. It would have been obvious to one having ordinary skill in the art to provide JP 55077972 in view of JP 09182952 the use of thermally heating the casting as taught by Pennock et al in order to reduce cycling time of removing casting from the sand mold.

5. Claims 8 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Andrews.

JP 55077972 in view of JP 09182952 fails to teach the use of a degradable binder and sand.

However, Andrews (col. 3, lines 60+) teaches the use of a degradable binder and sand treated with oxidant impregnating liquid for the purpose of promoting collapsibility characteristics of foundry core and mold and weakening the mold after casting and promoting the removal of casting from the mold. It would have been obvious to one having ordinary skill in the art to provide JP 55077972 in view of JP 09182952 the use of a degradable binder and sand as taught by Andrew in order to reduce cycling time of removing casting from the sand mold.

6. Claims 9 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 in view of Schlegel et al.

JP 55077972 in view of JP 09182952 fails to teach the use of heat treating the casting after the mold and core are removal.

However, Schlegel et al (col. 3, lines 30+) teach the use of heat for treating the casting after the mold and core removal for the purpose of promoting mechanic property such as casting hardness (col. 7, lines 38+). It would have been obvious to one having ordinary skill in the art to provide JP 55077972 in view of JP 09182952 the use of heat-treating the casting after the mold and core removal as taught by Schlegel et al in order to improve mechanic property such as casting hardness.

7. Claims 12-13, 14-15, and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Vinton et al.

JP 55077972 in view of JP 09182952 fails to teach the use of explosive charge in the energized stream. However, Vinton et al (col. 3, lines 27+ and EXAMPLES 2 and 6) teach the use of explosive charge (oxygen gas mixture) in a casting removing method for the purpose of dislodging at least a portion of the degraded mold and core from the casting. It would have

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been obvious to one having ordinary skill in the art to provide JP 55077972 in view of JP 09182952 the use of explosive charge in the energized stream as taught by Vinton et al in order to dislodge at least at selected locations such as the scored lines or grooves so that the dislodged mold parts can be effectively removed from and without damaging the casting.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Vinton et al and Schlegel et al.

JP 55077972 in view of JP 09182952 and further in view of Vinton et al fails to teach the use of heat treating the casting after the mold and core are removal.

However, Schlegel et al (col. 3, lines 30+) teach the use of heat for treating the casting after the mold and core removal for the purpose of promoting mechanic property such as casting hardness (col. 7, lines 38+). It would have been obvious to one having ordinary skill in the art to provide JP 55077972 in view of JP 09182952 and further in view of Vinton et al the use of heat treating the casting after the mold and core removal as taught by Schlegel et al in order to improve mechanic property such as casting hardness.

9. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Vinton et al and Pennock et al.

JP 55077972 in view of JP 09182952 and further in view of Vinton et al fails to teach the use of thermally heating the casting.

However, Pennock et al (col. 2, lines 68+) teach the use of thermally heating the casting (coating 25) with heating means including electrical induction heating means (col. 4, lines 73+) for the purpose of promoting uniform casting and differential expansion between the casting and mold and weakening the mold and promoting the removal of casting from the mold. It would

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have been obvious to one having ordinary skill in the art to provide JP 55077972 in view of JP 09182952 and further in view of Vinton et al the use of thermally heating the casting as taught by Pennock et al in order to reduce cycling time of removing casting from the sand mold.

10. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Vinton et al and Andrews.

JP 55077972 in view of JP 09182952 and further in view of Vinton et al fails to teach the use of a degradable binder and sand.

However, Andrews (col. 3, lines 60+) teaches the use of a degradable binder and sand treated with oxidant impregnating liquid for the purpose of promoting collapsibility characteristics of foundry core and mold and weakening the mold after casting and promoting the removal of casting from the mold. It would have been obvious to one having ordinary skill in the art to provide JP 55077972 in view of JP 09182952 and further in view of Vinton et al the use of a degradable binder and sand as taught by Andrew in order to reduce cycling time of removing casting from the sand mold.

11. Claims 23-25, 26-27 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Heine et al.

JP 55077972 in view of JP 09182952 fails to teach the use of energy pulsation in the energized stream. However, Heine et al (col. 2, lines 1+) teach the use of energy pulsation in the energized stream such as shock wave through the use of pulse generator 26 for the purpose of dislodging at least a portion of the degraded mold from the casting. It would have been obvious to one having ordinary skill in the art to provide JP 55077972 in view of JP 09182952 the use of energy pulsation in the energized stream as taught by Vinton et al in order to dislodge

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at least at selected locations such as the scored lines so that the dislodged mold parts can be effectively removed from and without damaging the casting.

12. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Heine et al and Schlegel et al.

JP 55077972 in view of JP 09182952 and further in view of Heine et al fails to teach the use of heat treating the casting after the mold and core are removal.

However, Schlegel et al (col. 3, lines 30+) teach the use of heat for treating the casting after the mold and core removal for the purpose of promoting mechanic property such as casting hardness (col. 7, lines 38+). It would have been obvious to one having ordinary skill in the art to provide JP 55077972 in view of JP 09182952 and further in view of Heine et al the use of heat treating the casting after the mold and core removal as taught by Schlegel et al in order to improve mechanic property such as casting hardness.

13. Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Heine et al and Pennock et al.

JP 55077972 in view of JP 09182952 and further in view of Heine et al fails to teach the use of thermally heating the casting.

However, Pennock et al (col. 2, lines 68+) teach the use of thermally heating the casting (coating 25) with heating means including electrical induction heating means (col. 4, lines 73+) for the purpose of promoting uniform casting and differential expansion between the casting and mold and weakening the mold and promoting the removal of casting from the mold. It would have been obvious to one having ordinary skill in the art to provide JP 55077972 in view of JP

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09182952 and further in view of Heine et al the use of thermally heating the casting as taught by Pennock et al in order to reduce cycling time of removing casting from the sand mold.

14. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Heine et al and Andrews.

JP 55077972 in view of JP 09182952 and further in view of Heine et al fails to teach the use of a degradable binder and sand.

However, Andrews (col. 3, lines 60+) teaches the use of a degradable binder and sand treated with oxidant impregnating liquid for the purpose of promoting collapsibility characteristics of foundry core and mold and weakening the mold after casting and promoting the removal of casting from the mold. It would have been obvious to one having ordinary skill in the art to provide JP 55077972 in view of JP 09182952 and further in view of Heine et al the use of a degradable binder and sand as taught by Andrew in order to reduce cycling time of removing casting from the sand mold.

15. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 55077972 in view of JP 09182952 and further in view of Legge et al.

JP '972 in view of JP '952 fails to teach the use of partially solidifying the casting in the mold before directing and dislodging the mold with fluid media.

However, Legge et al (col. 4, lines 44+) teach the use of partially solidifying the casting in a mold for the purpose of generating a thin self supporting metal shell before transferring the mold to have further processing without damaging or deforming the casting shape (col. 6, lines 10+). It would have been obvious to one having ordinary skill in the art to provide JP '972 in view of JP '952 the use of partially solidifying the casting in the mold as taught by Legge et al in

Art Unit: 1725

order to form a thin self supporting metal shell before directing and dislodging the mold with fluid.

16. Claims 44-45 and 48 rejected under 35 U.S.C. 103(a) as being unpatentable over either JP 09182952, Vinton et al or Heine et al in view of Legge et al.

Either JP '952, Vinton et al or Heine et al fails to teach the use of partially solidifying the casting in the mold before directing and dislodging the mold with energized stream.

However, Legge et al (col. 4, lines 44+) teach the use of partially solidifying the casting in a mold for the purpose of generating a thin self supporting metal shell before transferring the mold to have further processing without damaging or deforming the casting shape (col. 6, lines 10+). It would have been obvious to one having ordinary skill in the art to provide JP '952, Vinton et al or Heine et al the use of partially solidifying the casting in the mold as taught by Legge et al in order to form a thin self supporting metal shell before directing and dislodging the mold with fluid.

17. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over either JP 09182952, Vinton et al or Heine et al in view of Legge et al and further in view of either Smetan et al or JP 55077972.

Either JP '952, Vinton et al or Heine et al in view of Legge et al fail to teach the use of scoring.

However, Smetan et al (col. 2, lines 66+) teach the use of scoring a portion of the mold including the core for the purpose of weakening the mold and promoting the removal of casting from the mold. JP '972 (see abstract) teaches the use of scoring the mold surface for the purpose of weakening the mold and promoting the removal of casting from the mold. It would

Art Unit: 1725

have been obvious to one having ordinary skill in the art to provide either JP '952, Vinton et al or Heine et al in view of Legge et al the use of scoring as taught by either Smetan et al or JP '972 in order to reduce cycling time of removing casting from the sand mold.

18. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over either JP 09182952, Vinton et al or Heine et al in view of Legge et al and further in view of either Smetan et al or Pennock et al.

Either JP '952, Vinton et al or Heine et al in view of Legge et al fail to teach the use of thermally heating the casting.

However, Smetan et al (col. 2, lines 66+) teach the use of thermally heating the casting a portion of the mold including the core for the purpose of weakening the mold and promoting the removal of casting from the mold Pennock et al (col. 2, lines 68+) teach the use of thermally heating the casting (coating 25) with heating means including electrical induction heating means (col. 4, lines 73+) for the purpose of promoting uniform casting and differential expansion between the casting and mold and weakening the mold and promoting the removal of casting from the mold. It would have been obvious to one having ordinary skill in the art to provide either JP '952, Vinton et al or Heine et al in view of Legge et al the use of thermally heating the casting as taught by either Smetan et al or Pennock et al in order to reduce cycling time of removing casting from the sand mold.

Response to Arguments

19. Applicant's arguments with respect to claims 1-43 have been considered but are moot in view of the new ground(s) of rejection. Further, in response to applicant's argument that there is no suggestion to combine the references in claims 44-48, the examiner recognizes that

Art Unit: 1725

obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the step associated with the casting is partially solidified is obvious and taught by Legge et al (col. 4, lines 44+) for the purpose of generating a thin self supporting metal shell before transferring the mold to have further processing without damaging or deforming the casting shape (col. 6, lines 10+).

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 1725

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ing-Hour Lin whose telephone number is (571) 272-1180. The examiner can normally be reached on M-F (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

IHL

I.-H. Lin

11/03/06

*Kevin Kerns**Primary Examiner**AU 1725**Kevin Kerns 11/9/06*



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,750	07/10/2003	James L. Lewis JR.	2041219-0005	2336

7590
McGuireWoods LLP
Suite 1800
1750 Tysons Boulevard
McLean, VA 22102-4215

08/10/2007

EXAMINER

LIN, ING HOUR

ART UNIT

PAPER NUMBER

1725

MAIL DATE

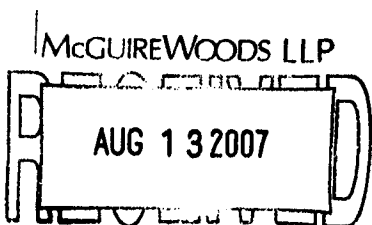
DELIVERY MODE

08/10/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



826

Notice of Allowability

Application No.

10/616,750

Examiner

Ing-Hour Lin

Applicant(s)

LEWIS ET AL.

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

COPY

1. ☒ This communication is responsive to 2/13/07.
2. ☒ The allowed claim(s) is/are 1-34.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 20070305.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

JONATHAN JOHNSON
PRIMARY EXAMINER

Art Unit: 1725

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John Hilten on March 5, 2007.

The application has been amended as follows:

IN CLAIMS

Claims 35-48 were canceled.

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ing-Hour Lin whose telephone number is (571) 272-1180. The examiner can normally be reached on M-F (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1725

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

I.H.L.

I.-H. Lin

3/5/07

Examiner-Initiated Interview Summary	Application No. 10/616,750	Applicant(s) LEWIS ET AL.	
	Examiner Ing-Hour Lin	Art Unit 1725	

COPY

All Participants:

(1) Ing-Hour Lin.

(2) John Hilten.

Date of Interview: 5 March 2007

Status of Application: Examiner's Amendment

(3) _____

(4) _____

Time: 10:30 am

Type of Interview:

☒ Telephonic

☐ Video Conference

☐ Personal (Copy given to: ☐ Applicant ☐ Applicant's representative)

Exhibit Shown or Demonstrated: ☐ Yes ☐ No

If Yes, provide a brief description: _____

Part I.

Rejection(s) discussed:

Claims discussed:

35-48

Prior art documents discussed:

Part II.

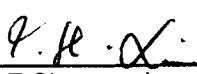
SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:

Attorney agreed that claims 35-48 were canceled.

Part III.

☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.

☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.



 (Examiner/SPE Signature)

 (Applicant/Applicant's Representative Signature -- if appropriate)

Notice of References Cited

COPY

Application/Control No.

10/616,750

Applicant(s)/Patent Under
Reexamination
LEWIS ET AL.

Examiner

Ing-Hour Lin

Art Unit

1725

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,622,775	09-2003	Crafton et al.	164/131
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

COPY

Inventors: James L. LEWIS, JR., et al.

Serial No.: 10/616,750

Filing Date: July 10, 2003

Confirmation No.: 2336

For: **METHOD AND APPARATUS FOR
ASSISTING REMOVAL OF SAND
MOLDINGS FROM CASTINGS**

Date: May 14, 2007

Group Art.: 1725

Examiner: Ing-Hour LIN

Atty. Docket: 2041219-0005

Commissioner for Patents:

Please place the Patent Office receipt stamp hereon to acknowledge receipt of the following:

1. Petition for Extension of Time under 37 CFR 1.136(a);
2. Notice of Appeal;
3. Payment by Credit Card – Two (2) Form PTO 238 in the amount of \$510.00 to cover the filing fee for the Extension of Time and in the amount of \$250.00 to cover the filing fee for the Notice of Appeal; and
4. An Acknowledgement Postcard.

JSI1/alj

4573522.1



HAND DELIVERY

John S. Hiltner
Registration No. 52,518

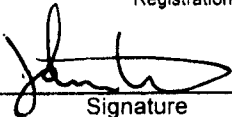
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PTO/SB/22 (12-04)

Approved for use through 7/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) FY 2005 <i>(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)</i>		Docket Number (Optional) 2041219-0005US																								
Application Number 10/616,750		Filed July 10, 2003																								
For METHOD AND APPARATUS FOR ASSISTING REMOVAL OF SAND MOLDINGS FROM CASTING																										
Art Unit 1725		Examiner Ing-Hour LIN																								
<p>This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.</p> <p>The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):</p> <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>Fee</u></th> <th style="text-align: center;"><u>Small Entity Fee</u></th> <th></th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> One month (37 CFR 1.17(a)(1))</td> <td style="text-align: center;">\$120</td> <td style="text-align: center;">\$60</td> <td style="text-align: center;">\$ _____</td> </tr> <tr> <td><input type="checkbox"/> Two months (37 CFR 1.17(a)(2))</td> <td style="text-align: center;">\$450</td> <td style="text-align: center;">\$225</td> <td style="text-align: center;">\$ _____</td> </tr> <tr> <td><input checked="" type="checkbox"/> Three months (37 CFR 1.17(a)(3))</td> <td style="text-align: center;">\$1020</td> <td style="text-align: center;">\$510</td> <td style="text-align: center;">\$510.00</td> </tr> <tr> <td><input type="checkbox"/> Four months (37 CFR 1.17(a)(4))</td> <td style="text-align: center;">\$1590</td> <td style="text-align: center;">\$795</td> <td style="text-align: center;">\$ _____</td> </tr> <tr> <td><input type="checkbox"/> Five months (37 CFR 1.17(a)(5))</td> <td style="text-align: center;">\$2160</td> <td style="text-align: center;">\$1080</td> <td style="text-align: center;">\$ _____</td> </tr> </tbody> </table> <p style="margin-top: 10px;"> <input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. <input type="checkbox"/> A check in the amount of the fee is enclosed. <input checked="" type="checkbox"/> Payment by credit card. Form PTO-2038 is attached. <input type="checkbox"/> The Director has already been authorized to charge fees in this application to a Deposit Account. <input checked="" type="checkbox"/> The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>23-1951</u>. I have enclosed a duplicate copy of this sheet. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038. </p> <p style="margin-top: 20px;"> I am the <input type="checkbox"/> applicant/inventor. <input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71 Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96). <input checked="" type="checkbox"/> attorney or agent of record. Registration Number <u>52,518</u> <input type="checkbox"/> attorney or agent under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34. _____ </p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%;">  _____ Signature John S. Hilten _____ Typed or printed name </div> <div style="width: 45%; text-align: center;"> May 14, 2007 _____ Date 703-712-5069 _____ Telephone Number </div> </div> <p style="font-size: small; margin-top: 10px;"> NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below. </p> <p> <input type="checkbox"/> Total of _____ forms are submitted. </p>				<u>Fee</u>	<u>Small Entity Fee</u>		<input type="checkbox"/> One month (37 CFR 1.17(a)(1))	\$120	\$60	\$ _____	<input type="checkbox"/> Two months (37 CFR 1.17(a)(2))	\$450	\$225	\$ _____	<input checked="" type="checkbox"/> Three months (37 CFR 1.17(a)(3))	\$1020	\$510	\$510.00	<input type="checkbox"/> Four months (37 CFR 1.17(a)(4))	\$1590	\$795	\$ _____	<input type="checkbox"/> Five months (37 CFR 1.17(a)(5))	\$2160	\$1080	\$ _____
	<u>Fee</u>	<u>Small Entity Fee</u>																								
<input type="checkbox"/> One month (37 CFR 1.17(a)(1))	\$120	\$60	\$ _____																							
<input type="checkbox"/> Two months (37 CFR 1.17(a)(2))	\$450	\$225	\$ _____																							
<input checked="" type="checkbox"/> Three months (37 CFR 1.17(a)(3))	\$1020	\$510	\$510.00																							
<input type="checkbox"/> Four months (37 CFR 1.17(a)(4))	\$1590	\$795	\$ _____																							
<input type="checkbox"/> Five months (37 CFR 1.17(a)(5))	\$2160	\$1080	\$ _____																							

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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NOTICE OF APPEAL FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Docket Number (Optional)
2041219-0005CIP

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on _____.

Signature _____

Typed or printed
name _____

In re Application of

James L. LEWIS, Jr., et al.

Application Number

10/616,750

Filed

July 10, 2003

For METHOD AND APPARATUS FOR ASSISTING REMOVAL OF
SAND MOLDINGS FROM CASTINGS

Art Unit
1725

Examiner
Ing-Hour LIN

Applicant hereby **appeals** to the Board of Patent Appeals and Interferences from the decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20(b)(1))

\$ 250.00

☒ Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by half, and the resulting fee is:

\$ _____

☐ A check in the amount of the fee is enclosed.

☒ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.
I have enclosed a duplicate copy of this sheet.

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 23-1951. I have enclosed a duplicate copy of this sheet.

☒ A petition for an extension of time under 37 CFR 1.136(a) (PTO/SB/22) is enclosed.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest.

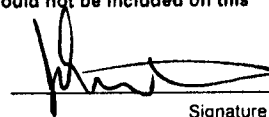
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

☒ attorney or agent of record.

Registration number 52,518.

☐ attorney or agent acting under 37 CFR 1.34.

Registration number if acting under 37 CFR 1.34. _____



Signature

John S. Hiltner

Typed or printed name

703-712-5069

Telephone number

May 14, 2007

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☒ *Total of 2 forms are submitted.

This collection of information is required by 37 CFR 41.31. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Credit Card Payment Form

(Do not submit this form electronically via EFS-Web)

Please Read Instructions before Completing this Form

Credit Card Information

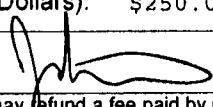
Credit Card Type: ☐ Visa ☐ MasterCard ☒ American Express ☐ Discover

Credit Card Account #: [REDACTED] 1009

Credit Card Expiration Date: 03/11

Name as it Appears on Credit Card: John S. Hilten

Payment Amount: \$ (US Dollars): \$250.00

Cardholder Signature: 

Date: May 14, 2007

Refund Policy: The USPTO may refund a fee paid by mistake or in excess of that required. A change of purpose after the payment of a fee will not entitle a party to a refund of such fee. The USPTO will not refund amounts of \$25.00 or less unless a refund is specifically requested and will not notify the payor of such amounts (37 CFR 1.26). Refund of a fee paid by credit card will be issued as a credit to the credit card account to which the fee was charged.

Service Charge: There is a \$50.00 service charge for processing each payment refused (including a check returned "unpaid") or charged back by a financial institution (37 CFR 1.21 (m)).

Credit Card Billing Address

Street Address 1: McGuireWoods LLP

Street Address 2: 1750 Tysons Blvd., Suite 1800

City: McLean

State/Province: Virginia

Zip/Postal Code: 22102

Country: US

Daytime Phone #: 703.712.5069

Fax #: 703.712.5196

Request and Payment Information

Description of Request and Payment Information:

Payment of Notice of Appeal Fee (Small Entity)

<input checked="" type="checkbox"/> Patent Fee	<input type="checkbox"/> Patent Maintenance Fee	<input type="checkbox"/> Trademark Fee	<input type="checkbox"/> Other Fee
Application No. 10/616,750	Application No.	Application No.	IDON Customer No.
Patent No.	Patent No.	Registration No.	
Attorney Docket No. 2041219-0005CIP		Identify or Describe Mark	

If the cardholder includes a credit card number on any form or document other than the Credit Card Payment Form or submits this form electronically via EFS-Web, the United States Patent and Trademark Office will not be liable in the event that the credit card number becomes public knowledge.

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Credit Card Payment Form

(Do not submit this form electronically via EFS-Web)
Please Read Instructions before Completing this Form

Credit Card Information

Credit Card Type: ☐ Visa ☐ MasterCard ☒ American Express ☐ Discover

Credit Card Account #: [REDACTED] 1009

Credit Card Expiration Date: 03/11

Name as it Appears on Credit Card: John S. Hiltten

Payment Amount: \$ (US Dollars): \$510.00

Cardholder Signature: [Signature]

Date: May 14, 2007

Refund Policy: The USPTO may refund a fee paid by mistake or in excess of that required. A change of purpose after the payment of a fee will not entitle a party to a refund of such fee. The USPTO will not refund amounts of \$25.00 or less unless a refund is specifically requested and will not notify the payor of such amounts (37 CFR 1.26). Refund of a fee paid by credit card will be issued as a credit to the credit card account to which the fee was charged.

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Credit Card Billing Address

Street Address 1: McGuireWoods LLP

Street Address 2: 1750 Tysons Blvd., Suite 1800

City: McLean

State/Province: Virginia

Zip/Postal Code: 22102

Country: US

Daytime Phone #: 703.712.5069

Fax #: 703.712.5196

Request and Payment Information

Description of Request and Payment Information:

Payment of Three Month Extension of Time Fee (Small Entity)

<input checked="" type="checkbox"/> Patent Fee	<input type="checkbox"/> Patent Maintenance Fee	<input type="checkbox"/> Trademark Fee	<input type="checkbox"/> Other Fee
Application No. 10/616,750	Application No.	Application No.	IDON Customer No.
Patent No.	Patent No.	Registration No.	
Attorney Docket No. 2041219-0005CIP		Identify or Describe Mark	

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